Environment, Safety, and Health Division

1996 Science, Technology, and Support Activities Self-Assessment

APPENDIX A

- Vision, Challenge, and Principles
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ENVIRONMENT, SAFETY, AND HEALTH DIVISION

I, a member of the Environment, Safety, and Health Division, as a citizen of the Los Alamos Natioanl Laboratory, and as an employee in support of the University of California set forth the folowing vision, challenge, and principles as the standard by which I will conduct myself within the Laboartory and across the world community.

VISION

I enhance creative science and innovative technology within an environment that is safe and healthy for present and future generations and that restores and preserves the earth.

CHALLENGE

I will be recognized by our Laboratory colleagues for practicing operational excellence;
and
with my help, the Laboratory will be recognized by ethe Department of Energy and University of California, by my local communities and the state, and by the nation and the world for achieving institutional standards of operational excellence.

PRINCIPLES

I make paramount the protection of people and stewardship of the environment.

I operate as a responsible stewards of the public trust.

I promote the values and expectations of the Laboratory.

I respect and support my collegues throughout the Laboratory.

I provide createive, timely and practical products and services that respond to the needs and wants of my customers and Laboratory partners.

I serve with uncompromising levels of integrity, honesty, and professional ethics.

I focus on actions that build trust with my division, my Laboratory, the sponsors, and the stakeholders.

I assist the Laboratory in achieving compliance with appropriate regulations, standars, and requirements.

I champion the interests of the Laboratory and the Department of Energy in relevant regulatory arenas.

I seek the long-term viability of the Laboartory and the short-term success of individuals projects.

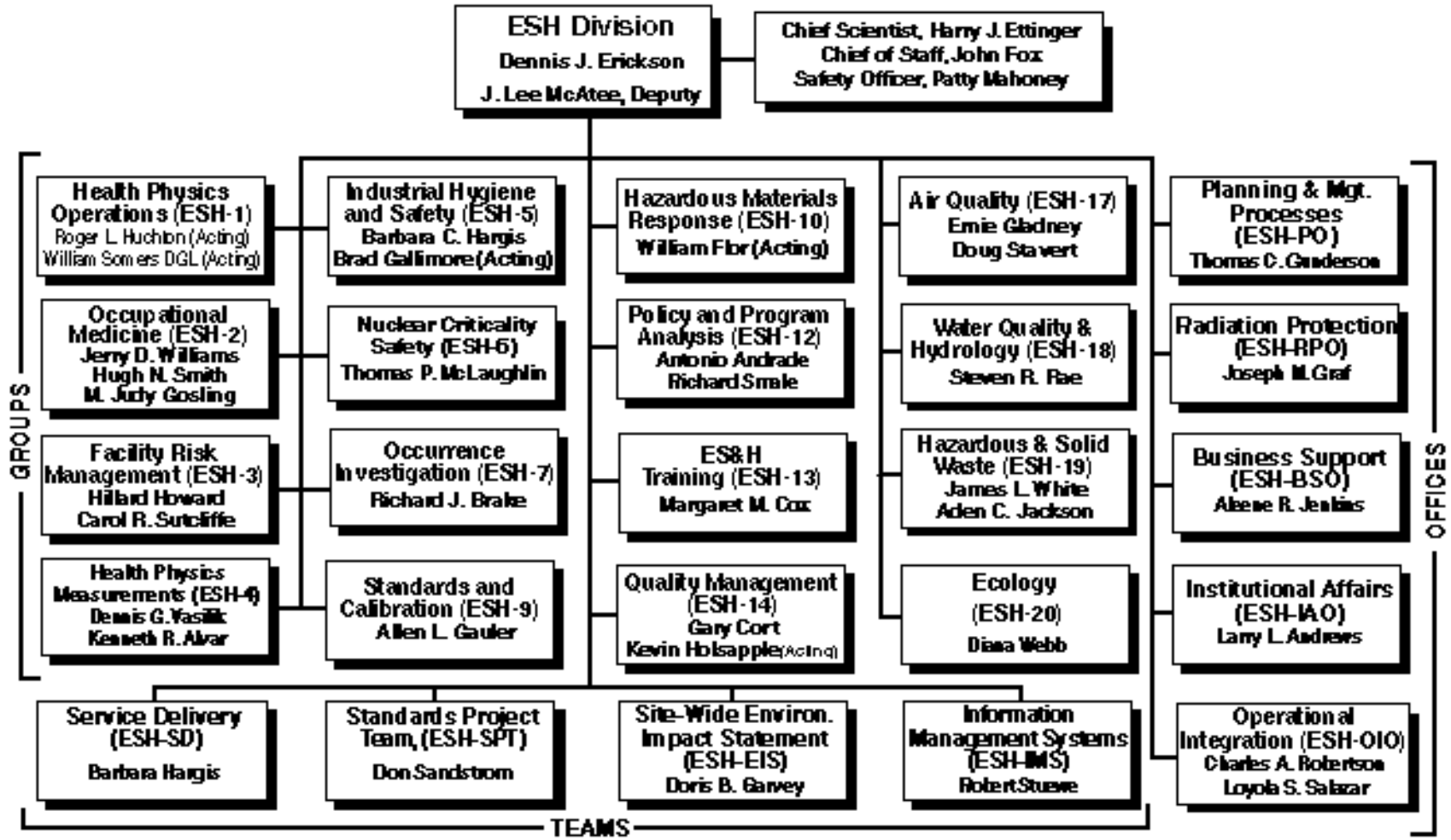
I continually improve the quality of processes and products.

I measure and benchmark my efforts to improve efficiency, reduce cost, and maximize reward.

I celebrate my accomplishments.

---June 1996
Los Alamos

Environment, Safety, and Health Division



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Los Alamos

1996 ORGANIZATIONAL SUMMARIES

Health Physics Operations (ESH-1)

The Health Physics Operations Group's mission is to provide for protection of workers, public, and environment by ensuring that potential radiological hazards at the Laboratory are identified, characterized, understood, and controlled. The group helps to ensure radiation exposures to workers are minimized, radioactive contamination is contained, and releases of radioactivity to the public and environment are controlled. These activities provide a primary basis for justifying and maintaining adequate radiological safety for facilities as documented in hazard analyses, safety assessments, and safety analysis reports. Numerous regulatory and contractual requirements activities provide prescriptions to assure both the public and Laboratory workers that the Laboratory is responsibly managing its potential radiological hazards.

ESH-1 comprises health physicists, radiation control technicians, and administrative support personnel that provide field operational radiation protection support to Laboratory facilities and/or technical areas. The tasks performed by ESH-1 can be split into those that are institutionally-driven to ensure the basic elements of radiation protection exist for meeting the defined facility safety envelopes and those that are done in direct support of the Laboratory's programmatic activities.

Tasks done to meet institutional radiation protection needs and provide for the facility safety envelopes include: program development, procedures, and routine radiation surveys of areas and people, radiation control techniciantraining, air sampling/ monitoring, instrumentation deployment/maintenance, internal/external appraisal interactions, group safety program, procedures/policy development, as low as reasonably achievable program (ALARA) support, source control, area designation/posting, respiratory protection support, radioactive air effluent monitoring support, waste management support, quality assurance, facility evaluation, and radiation measurements support. These activities are essential for allowing the operation of all Laboratory facilities doing any work involving radiological materials and/or operation of radiation generating devices.

Tasks done in direct support of the Laboratory's programmatic activities differ from the above tasks in that the level of effort driven directly by the level and nature of program activities. These are tasks usually done upon request of the operating groups and are highly variable in time and place. Completion of these tasks visibly impact completion of the Laboratory's programs since they are integral and necessary to radiological work activities. Examples of tasks in this category are special radiation monitoring support, safety analyses support, design reviews, safety interface, training assistance, work reviews, radiation work permits, emergency response, radiation incident reports critiques, special surveys, decontamination and decommissioning, and technical assistance.

Occupational Medicine (ESH-2)

The Occupational Medicine Group's mission is to provide comprehensive occupational health care services to protect and promote the physical and mental health of Laboratory site workers in support of the operational and programmatic needs of the Laboratory. A variety of support and service functions are provided by highly trained professional occupational medicine staff in the group:

- Perform routine, prescribed fitness-for-duty, medical surveillance, and medical certification evaluations as part of an ongoing program for (1) monitoring the effectiveness of worker health protection initiatives and (2) ensuring that employees are physically and emotional fit for job assignment;
- Evaluation, triage, managed care, rehabilitation of workers with work-related injuries and illness;
- Emergency response/decontamination staff and facility capabilities;
- Medical evaluation for management fitness-for-duty referrals; disability case management; sickness absence management;
- Medical support for the Laboratory Worker's Compensation and Early Return-to-Work programs;
- Preventive medicine and wellness programs, health promotion, and enhancement counseling and education programs;
- Employee Assistance Program support for mental health component of employee health and wellness; support for Laboratory human reliability programs and drug free workplace initiatives;
- Short-term, limited nonoccupational medical care for employee health problems not ordinarily requiring medical management by private physician;
- Teaming with Industrial Hygiene and Safety program staff to provide field support, worksite evaluations, and site-specific occupational medicine support to Laboratory employees, programs, and organizations;
- Provide institutional support in developing/implementing Laboratory health-related policies and programs;
- Develop, maintain, and protect confidential employee medical records and medical systems database;
- Perform health surveillance tracking and trending activities; and
- Conduct research in the areas of health effects of occupational exposures.

Research Project #1: Collaboration with National Jewish Hospital and LS Division on the use of flow cytometry to enhance the reliability of the Lymphocyte Transformation Test for screening workers to detect Beryllium sensitivity.

Research Project #2: Coordination with National Jewish Hospital and CIC Division to conduct an evaluation of digitization electronic transmission and automated B-reading of chest x-rays to detect pneumoconioses.

Facility Risk Management (ESH-3)

The Facility Risk Management Group's mission is to provide input and expertise to facilities and line managers in the management and documentation of ES&H hazards and risks associated with existing and new activities. ESH-3 is organized into three sections that support the development and maintenance of facilities' authorization basis. The authorization basis is that set of documents that define the facility and operational ES&H envelope, analyzes and communicates achievement of ES&H objectives, and communicates the basis for acceptance of ES&H risk. The nuclear and non-nuclear safety orders establish a formal authorization basis process that allows DOE to formally authorize contractor operations and programs within its facilities based upon the risks and operating parameters. The Laboratory's activities to support the authorization basis process is managed through ESH-3 and is an integrated program that covers all facilities and hazards.

The **Risk Management Programs** (RMP) Section provides institutional policy and guidance to ensure consistency across Laboratory facilities in the development of safety analysis documentation and implementation of risk management programs. Programs include hazard classification, safety analysis reports, technical/operational safety requirements, start/restart, and unreviewed safety question determination (USQD) and equivalent programs in non-nuclear facilities. RMP serves as the point of contact to DOE and other external regulators concerning institutional approaches to risk management requirements and regulations. They partner with other Laboratory organizations and DOE to anticipate and analyze impacts of impending regulations and DOE orders on Laboratory operations. The RMP section serves as the conduit to communicate to Laboratory organizations, institutional technical decisions negotiated with DOE in the area of authorization bases. This section also provides independent review of safety analysis documentation, operating parameters, and USQD.

The **Risk Assessment and Hazard Analysis Services** (RAS) Section supports Laboratory facilities in preparing and managing the preparation of safety analysis documents. They participate on teams, with operating organizations, to provide facility hazard classifications and analyses, and start/restart documentation. They partner with DOE and the operating organization in negotiating facility specific requirements. RAS supports facility personnel in implementing institutional risk management programs.

The **Facility Review and Project Modification** Section supports programs to assure that changes to facilities and operations are reviewed for ES&H commitments and are permitted within the approved authorization basis. They coordinate ES&H reviews for construction, new designs, and modifications. Working with project design, business, and contracting organizations, the ESH-ID and the work review programs provide assurance that the USQD and change control processes are maintained. The ESH-ID process is directed at early identification and management of concerns associated with the impact of new projects or modification on the existing authorization basis.

ESH-3 supports the core competencies that operate within the Laboratory's complex facilities such as TA-55, LANSCE, DARHT, WETF, and CMR. Without defensible safety documentation to assure DOE and the public that our facilities can operate safely, we have had difficulty concentrating the efforts of the Laboratory on excellent science. In addition to the role of providing defensible risk analyses and proactive management systems for the management of the authorization basis, ESH-3 provides technical input and criteria for the development of risk management systems.

Health Physics Measurements (ESH-4)

The Health Physics Measurement Group's primary mission is to support the Laboratory's radiation protection and contamination control program by providing high-quality radiation measurement and analysis capabilities. The reading of the external whole-body dosimeters and the lung counts which provide information for external and internal radiation exposure are examples of such measurements. The group also provides nuclear counting analysis services to ESH-1 and ESH-17 and other Laboratory organizations who generate air sample and swipe samples as part of the radiation monitoring program. This information is used to determine radiological and contamination conditions at facilities during activities involving radioactive materials.

ESH-4 is organized into four teams that provide institutional operational support to the Laboratory. The Personnel Dosimetry Operations Team is responsible for the external and extremity dosimetry programs. The Radiation Instrumentation and Calibration Team provides maintenance, repair, and calibration of all fixed and portable radiation monitoring detectors at the Laboratory; and the Health Physics Analysis Laboratories Team conducts health physics-related laboratory analyses. The fourth team, Measurements Technology Support, conducts applied research and development activities in the Group and in support of other radiation measurements needs of the Laboratory, and also has the *in vivo* measurements program for the Laboratory.

The Personnel Dosimetry Operations Team provides personnel dosimetry services to measure and document personnel exposures to ionizing radiation and radioactive material. These services include laboratory-wide dosimetry capabilities for monitoring whole-body and extremity exposures to external radiation, and special thermoluminescent dosimetry measurements. Approximately 8500 dosimetry badges are issued to Laboratory and visitor personnel monthly. In addition, several hundred area placement dosimeters and special monitoring applications are performed annually by the Team.

The Radiation Instrumentation and Calibration Team provides radiation instrumentation and measurements services to ensure that high-quality devices are used to measure ionizing radiation and radioactive material levels. The team maintains, repairs, and calibrates over 6000 health physics instruments per year. These include alpha, beta, gamma, neutron, and tritium fixed and portable instruments. Involvement in development and implementation of new and improved radiation-monitoring instruments is also part of the mission. Special calibrations are offered to Laboratory personnel who have applications differing from the normal standards. The team is currently involved in many pursuits to increase efficiency in the production part of the team.

The Health Physics Analysis Laboratories Team provides health physics analysis support for the Laboratory. This includes the analysis of samples concerning radiation worker protection and monitoring: continuous air monitor filters, worker swipes, and wound monitoring; off-site room air and on-site shipment swipes; WIPP, Area-G, intralab transfers; waste swipes; mop water, vacuum pump oils, other water samples; radioactive air emissions stack samples; tritium swipes; samples for areas of public access, and several other miscellaneous sources. The team is currently processing over 581,000 samples annually to meet these needs.

The Measurements Technology Support Team maintains and improves the quality of health physics measurement technology through developing new instruments and methods to perform measurements, and through implementing state-of-the-art equipment, systems, and methods. The team's activities center on personnel dosimetry and air sampling. In addition

to these activities, the team has an on-going program characterizing neutron fields at Laboratory workplaces so that personnel dosimeters may correctly measure dose from neutrons, and is responsible for nuclear accident dosimetry at the Laboratory. The team also includes the Laboratory's *In Vivo* Measurements Laboratory (IVML, which measures radionuclides that have been inhaled, ingested, or absorbed through wounds into Laboratory personnel. These measurements are provided in conjunction with other dosimetry activities to ensure that radiation workers have had no previously undetected exposure. Other cases are measurements of individuals with known radionuclide body burdens or who were in areas where radioactivity was present.

Industrial Hygiene and Safety (ESH-5)

The Laboratory's Industrial Hygiene and Safety Group works to promote successful and safe operations by partnering with operating divisions. It also provides support by maintaining institutional health and safety programs using highly trained professional staff. The staff works with operating divisions to establish policies programs, and procedures that help assure uniformity and consistency of health and safety program efforts.

The group provides support to operating divisions in a variety of subject areas, including:

- Electrical safety - by providing institutional guidance in electrical safety program efforts and serving in the capacity of "Electrical Authority Having Jurisdiction," which offers guidance on the application and interpretation of electrical safety code requirements.
- Materials handling - providing guidance in the use of forklifts, cranes, hoists, and rigging, and other related sorts of equipment, which are used to move equipment and materials used in the work environment.
- Laser Safety - by maintaining a program to evaluate and control the use of lasers in the workplace, and to ensure that persons doing work with such equipment understand the hazards and needed precautions.
- Hazard Analysis and Assessment - by assisting employees and supervisors in basic concepts of hazard recognition, evaluation, and control.
- Automated Chemical Inventory System (ACIS) - is a Lab-wide chemical inventory computer system. ACIS provides chemical data for chemical exchange, air quality permits, SARA reporting and other ad hoc requests. Chemical purchases are bar-coded at Laboratory receiving. Field inventories are updated annually by ESH-5 or by each chemical custodian.
- Material Safety Data Sheets (MSDS) - over 23,000 Material Safety Data Sheets are available from the Laboratory's World Wide Web server. MSDS are integrated with a chemical container hazard labeling program. Other integration is planned with the chemical inventory (ACIS), IH Safety hazard analysis, and occupational medicine.
- Toxicology support is provided to Laboratory staff to help write MSDS's and identify chemical hazards.
- Industrial hygiene and safety databases are developed and maintained. Access is available via the Laboratory network to any Laboratory staff with a need-to-know.
- A variety of industrial hygiene programs including carcinogens, confined space, non-ionizing radiation, health hazard assessment, which provide for chemical, physical, and biological hazards sampling and monitoring.
- High Efficiency Particulate Air Filter Testing - This activity involves the in-place performance testing of HEPA filters operated at the Laboratory. These tests are conducted on all new filter installations and at least annually thereafter.
- Respiratory Protection - Respirator training, fit testing, equipment procurement, equipment maintenance and quality control testing, and inventory control are included in this program area.
- Asbestos Management - Inventory of asbestos containing building materials (including hazard rating), identification of appropriate corrective actions (repair/removal), establishment of funds for corrective actions, and oversight of contractor activities (including work practice specification) are the primary elements of this program.
- Facility Design and Modification Support - This activity includes the interaction of Industrial Hygiene staff with the facilities design organization. Specifically, the establishment of design criteria, development and evaluation of engineering controls for toxic materials (e.g., ventilated hoods), and participation in the facilities design review board.

Specific goals include:

- Promotion of successful and safe operations through partnering efforts with operating divisions.
- Improved loss experience through continued reduction in workplace injuries and illnesses.
- Continued improvement in the effectiveness of implementation of institutional safety and health programs.
- Continued reduction of Laboratory subcontractor loss experience through better oversight and the incorporation of a combination of incentive and penalty language into new and/or renegotiated subcontracts.
- Working to develop and implement improved UC measures of performance.

See Technology Development, page 65A.

Nuclear Criticality Safety (ESH-6)

The Nuclear Criticality Safety Group's mission is to provide support for all Laboratory programs involving significant quantities of fissile materials; in addition, ESH-6 supports the DOE, Other DOE facilities, and DoD. The group assists in developing procedures for operations with such material, reviewing operations, and training personnel.

The group maintains familiarity with operations of the several groups handling fissile materials so that effective guidance can be provided expeditiously when the need arises. Additionally the group keeps current with developments on criticality safety standards and regulatory requirements and with recent critical experiments that have generated data important to criticality safety. The staff also develops allowable loading values for fissile material shipping containers.

Extra-Laboratory activities supported by the group include
- Criticality guidance on all developmental, stockpile, and retired nuclear weapons, particularly the Nuclear Explosive Safety Studies of the DOE and the technical publications for the DoD.
- Specialized and unique hands-on criticality safety training for the DOE with attendees from the Nuclear Regulatory Commission and DoD sectors;
- Technical support for and reviews and appraisals of sister DOE facilities both at their request and at the request of DOE; and,
- Active involvement with the development of both national and international consensus standards relating to nuclear criticality safety.

Members of the group use Monte Carlo and/or discrete ordinates neutron transport codes such as MCNP, KENO, ONEDANT/TWEDANT for neutronic analyses. They also are knowledgeable of principles of neutron interactions with matter and nuclear reactor theory.

All of the group's Laboratory and extra-Laboratory activities either directly or indirectly support the main Laboratory mission relating to the US nuclear weapons capability. To accomplish its mission, the group requires staff with a strong neutron physics capability and a broad appreciation of the solution chemistry of uranium, plutonium, and other hazards so that criticality risks can be put in perspective. ESH-6 staff also must possess excellent communication and interpersonal skills. All of these attributes are and will continue to be trademarks of the ESH-6 staff.

Occurrence Investigation (ESH-7)

The Occurrence Investigation Group's mission is to support the proper investigation and reporting of abnormal events that occur at the Laboratory. The Group was formed in 1993 to bring added value to Laboratory operations from the occurrence reporting program. The group comprises a central staff of trained full-time investigators gathered from a variety of ES&H disciplines to support the Laboratory's facility managers in their investigative duties.

The group's operation is focused on the investigation of abnormal events as required by DOE 5480.19 "Conduct of Operations", and reporting results as detailed by DOE O 232.1 "Occurrence Reporting and Process of Information." These orders clearly define the primary responsibilities of line and facility management for occurrence reporting. The rate of reportable occurrences at the Laboratory has averaged about one per workday (260 per year) since the implementation of occurrence reporting in July, 1990. Investigations and processing the required Notification and Final Reports consume various levels of effort dependent on the complexity of the occurrence. The simplest occurrence requires about two person-days; the most complex may require 20 person-days. The average effort is estimated at six person-days per occurrence.

Board investigations by DOE of certain more serious reportable occurrences are also required by DOE O 225.1, "Accident Investigations." ESH-7 provides liaison between the Laboratory and DOE for such investigations.

The primary customer of ESH-7 is Laboratory line and facility management. ESH-7, supports line managers in their implementation of the occurrence reporting requirements of DOE O 232.1. ESH-7 Occurrence Investigators assist the facility manager in categorizing, investigating, and reporting occurrences; in performing analyses to determine root causes; and in developing effective corrective actions. ESH-7 also analyzes occurrences on a quarterly basis, identifies trends, and develops lessons learned. Operating experiences and lessons learned from individual occurrences are distributed daily and biweekly throughout the Laboratory and the DOE complex.

The second major customer of ESH-7 is DOE management, including DOE/LAAO Facility Operations Branch; DOE/AL; and program managers at DOE/HQ. Due to the upward flow of occurrence reporting data in the Idaho-based Occurrence Reporting and Processing System, and the approval responsibilities of DOE/LAAO and DOE/HQ program managers for all final reports, DOE scrutiny of ESH-7 efforts is routine. ESH-7 investigators interact daily with both DOE/LAAO and DOE/HQ personnel.

Standards and Calibration (ESH-9)

The Standards and Calibration Group's mission is to provide high quality calibration services and capabilities in a wide variety of physical, dimensional, and electrical measurement areas. The group and the Laboratory calibration program it supports respond to standards defined in federal law and a number of DOE orders, such as 10 CFR 830.120, Quality Assurance Requirements; DOE 4330.4A, Maintenance Management Program; and AL 57XA, Standards and Calibration Program. In addition to providing calibration services and associated documentation for all Laboratory groups and JCI, ESH-9 offers measurement-related consultation and develops new or expanded capabilities as required by Laboratory users.

The group was established by the Director in 1983 to serve as the Laboratory's central facility for maintaining measurement traceability. At the same time, a Laboratory policy on calibration was adopted; this policy was revised in 1986 and again in 1991. Traceability is the ability to demonstrate that the unit of measurement being used in the field is the same as the national standard unit.

The calibration program is a key element in ensuring both safety and scientific accuracy. It supports all core competencies that depend on instrumentation to measure data that are used to monitor or control safe conditions or upon which scientific or engineering conclusions are based. These include complex experimentation and measurement; nuclear and advanced materials; nuclear weapons science and technology; earth and environmental systems; bioscience and biotechnology; and nuclear; and nuclear science plasmas, and beams.

Hazardous Materials Response (ESH-10)

The Hazardous Materials Response Group's primary missions are emergency response and technical consultation. There are four emergency response missions. The Group is responsible for providing hazardous materials (HAZMAT) emergency response for the Laboratory and for the County of Los Alamos (through the MOU between the County and the DOE). Off-site HAZMAT response (beyond Los Alamos County) is also provided as requested by DOE.

In addition to chemical and radiological emergency response, the Group also supports four direct-funded DP-23 programs (RAP, ARG, NEST, and FRMAC). ESH-10 is the home of the Laboratory's Radiological Assistance Program (RAP) and the RAP team. The DOE Regional Coordinating Official is at DOE/AL, and RAP responses can be requested for any location in Region 4 (Arizona, New Mexico, Texas, Oklahoma, and Kansas). In a larger emergency, our RAP teams could be requested to support teams in other regions as well. The group also provides worldwide-deployable health and safety support to the DOE's Accident Response Group (ARG) and Nuclear Emergency Search Team (NEST) programs. The Laboratory's ARG health and safety support is the largest component of both personnel and equipment across the DOE complex. The Group can also be requested to provide health and safety support to the Federal Radiological Monitoring and Assessment Center (FRMAC) in cases of radiological emergencies with off-site consequences anywhere in the US.

Technical consultation encompasses pre-emergency planning for on-site accidents, non-emergency technical services, and off-site training and exercises in many programs. Technical consultation in the areas of hazardous materials and weapons of mass destruction provides the group with a worldwide customer base. DoD customers ask for classified and unclassified technical consultation. An example of an unclassified mission is our effort to provide dose reconstruction for nuclear weapon workers. Classified work is focused on counterproliferation of weapons of mass destruction activities. The group is also active in the Safe, Secure, and Dismantlement efforts (in cooperation with the DoD) with the states of the Former Soviet Union (FSU), and have provided DOE equipment and technical consultation and training to Russia, Belarus, Kazakhstan, and Ukraine. Instrumentation was also provided to respond to the Tomsk storage facility explosion. The Group is active on two joint working groups with the government of the United Kingdom, including one cochair position. Local (US) customers include the Defense Nuclear Weapons School, Defense Nuclear Agency, other DoD organizations, many organizations within the Laboratory, the County of Los Alamos, the State of New Mexico, local Tribal governments, DOE, and many DOE contractor facilities. Our FRMAC participation also involves pre-planning with NASA for space launches which include radioactive power sources.

The group is completely aligned with the Laboratory's mission of reducing the global nuclear danger. The group directly supports all Laboratory operations via the on-site HAZMAT response and consultation. The group also contributes to the reduction of global nuclear danger through direct interactions with the governments of the FSU and the United Kingdom. The group's role in counterproliferation is positioning us to make the world less vulnerable to all types of weapons of mass destruction.

Policy and Program Analysis (ESH-12)

The Policy and Program Analysis Group mission is “To enhance science and technology development by engendering excellence in the radiation protection program of the Los Alamos National Laboratory.” A cadre of skilled physicists, chemists, biophysicists, nuclear engineers, and related professional scientists are employed in the group to develop and support high-quality radiation programs for the Laboratory.

Ten shared-responsibility teams with a wide-ranging set of radiation protection activities assist in sustaining the Laboratory core competencies, particularly those associated with nuclear materials and nuclear weapons science and technology. These team activities include

- radiological engineering;
- risk assessment and program planning;
- radiation dose evaluation and dose optimization;
- division-wide data systems services;
- radiation protection support for the Laboratory's nuclear weapons;
- test program activities at the Nevada Test Site and
- x-ray device/source.

The group also provides technical and administrative support to the Laboratory's Radiation Control Manager and the Laboratory's radiation protection programs.

ES&H Training (ESH-13)

The ES&H Training Group's mission is to provide training that helps ensure that all Laboratory workers possess the knowledge and skills they need to perform their jobs in accordance with environment, safety, and health (ES&H) laws, policies, and procedures. ESH-13 fulfills this role by operating the ES&H Training Center and by

- creating training courses,
- scheduling and conducting the courses,
- testing workers to ensure that they possess the ES&H knowledge required of all Laboratory personnel,
- maintaining training records on each worker, and
- deploying training staff to assist with facility-related training and with reengineering/workforce productivity initiatives.

The ES&H Training Center has a staff of training specialists with backgrounds in various scientific and technical fields. These specialists work closely with subject-matter experts during every stage of course development and piloting to ensure that the course is technically sound and meets the needs of the target audience. ESH-13 training staff also serve on a variety of DOE-wide training committees.

Most of the courses are driven by federal, state, and Laboratory policies and procedures such as DOE orders, CFRs, and ARs, and/or by standards set up by industry groups and independent standards-making organizations, such as the American National Standards Institute (ANSI) and the Compressed Gas Association.

ESH-13 accommodates its customers and increases efficiency by offering training in various modes of delivery. These include classroom, field, self-study booklets and videos, computer-based training, and some facility-related training on-site. In support of the Laboratory's workforce productivity initiative the training group is re-examining training requirements, streamlining training plans when appropriate, and working with other training organizations to prevent redundancies.

Currently, ESH-13 offers over 100 training courses that fall into 8 subject areas. These include

- The Safety Program. Courses in this subject area include electrical safety, forklift safety, crane safety, laser safety, explosive safety, suspect/counterfeit bolt awareness, Occupational Health and Safety Administration (OSHA) standards, lockout/tagout procedures, fire protection, shop safety, defensive driving, and commercial driver's license test preparation.
- The Health Program. Courses in this subject area include chemical hazard communication, confined space, hearing protection, respirator use, first aid, cardiopulmonary resuscitation (CPR), back care, ergonomics, bloodborne pathogens, welding safety, and the safe handling of asbestos, beryllium, hydrogen, mercury, lead, cryogens, and compressed gases.
- The Environment Program. Courses in this subject area cover hazardous waste operations, waste management pollution prevention practices, spill prevention and control, and other regulatory requirements related to hazardous substances and their impact on human health and the environment.
- The Packaging and Transportation Training Program. Courses in this subject area include an overview of the regulations governing the packaging and transportation of hazardous materials and hazardous waste, packaging, shipment, driver training, and vehicle inspection.

- The Radiation Program. Courses in this subject area include radiological worker training, x-ray safety, plutonium safety, tritium safety, criticality safety, radiological control responsibilities for managers, radiological control technician training, and dosimetry and instrumentation technician training.
- The General Employee Training Program. This course, required for all new Laboratory workers and others who require unescorted access to nuclear facilities consists of 17 modules covering an introduction to the Laboratory, facilities, administrative policies and procedures, the quality program, classified and sensitive information, security, materials control and accountability, ES&H policies and procedures, OSHA rights and responsibilities, industrial hygiene, industrial safety, lockout/tagout, general employee radiological training, fire protection, emergency management, occupational medicine, and environment.
- The Emergency Response Program. Courses in this subject area include experts of emergency management and emergency response.
- The ES&H Management Program. This program offers a curriculum collected from several training areas that enables managers and supervisors to create safe and healthful operations and environments for their workers.
- The ES&H Facility-Specific Training Program. This program includes guidelines for developing facility-specific training, guidelines and standards for computer-based facility-specific training, and directories for facility-specific training for Laboratory workers and visitors.

The activities of ESH-13 support the operation of Laboratory research and development activities and help to maintain and improve the core competencies of the Laboratory.

Quality Management (ESH-14)

The Quality Management Group's mission is to provide quality assurance and management support in the following areas:

- develop, provide overall direction for, and maintain the Laboratory quality programs and hierarchical procedures implementing this policy;
- conduct reviews and audits to measure the programs effectiveness and to assist implementation;
- promulgate the Laboratory quality programs to subcontractors and ensure effective implementation;
- assist line management in developing quality standards and controls appropriate to each activity;
- develop appropriate training for Laboratory employees, subcontractor personnel, and visitors; and
- develop goals and performance indicators for the Laboratory quality programs.

Since February of 1992, the group's mission has remained the same, that is, to accomplish the above objectives. In October of 1991 the DOE Order on Quality, 5700.6, was totally rewritten. This rewrite assigned the responsibility for determining the implementation requirements for quality to senior management instead of the QA personnel as had been the practice in the past. Hence, the group in February of 1992 became a support effort to help management build quality processes into their everyday activities. The order was then turned in to the rule 10CFR830.120, Quality Management for Nuclear Facilities, in 1994. The group, ESH-14, was responsible for the submittal of the implementation plan to the new rule.

The group updated the Quality Assurance Management Plan as part of the implementation plan for 10CFR830.120, Nuclear Facility Quality management. The Quality Assurance Management Plan describes how the Laboratory is going to meet the requirements of 10CFR830.120 and DOE Order 5700.6C. ESH-14 also prepared a guidebook which provides guidance and suggestions for addressing those requirements.

The group is approximately one-fourth funded with indirect funds and the remainder with a recharge budget. The indirect funds are used to accomplish the list of objectives from Directors Policy 110 including short term help starting quality programs, the Laboratory's receiving and inspection services, and Laboratory vender evaluation and approval. The recharge funds are supplied by those groups who decided to use personnel from ESH-14 who have been trained and are experienced in implementing quality principals and programs. These personnel are supplied essentially at cost on an as-needed basis to other groups within the Laboratory to implement their quality efforts. 10CFR830.120 and DOE Order 5700.6C apply to all activities performed at the Laboratory except for those activities that are run under an existing approved quality management program like one licensed by the NRC, Yucca Mountain, and nuclear weapons production covered by QC-1. In an ongoing awareness activity, the group is expanding peoples perception of the positive aspects of a quality program. This has resulted in an ever-increasing demand for quality management support. When a group or individual request assistance, a quality specialist will meet with them to determine their management needs. In many cases, the group or individual already have much of what is required and simply do not know how to take credit for what is in place. The group will continue to work with them until the needs are identified and a plan of action is developed. At this point the group may elect to perform those actions using existing manpower with ESH-14 as a review body, or they make elect to use someone from the group to assist them. Beyond this point, there is a charge based on their needs as agreed upon at that time. Basically, all of the Core Competencies involve

quality of one sort or another. Hence, ESH-14 supports all the laboratory core competencies with particular focus on the nuclear programs.

Air Quality (ESH-17)

The Air Quality Group's mission is to provide the programs necessary to assure Laboratory compliance with Federal and State air quality regulations. The group is also responsible for all DOE mandated environmental surveillance activities at the Laboratory regarding air emissions impacts.

The group's activities contribute to all Laboratory core competencies that emit radioactive and/or hazardous/toxic materials to the atmosphere. A priority air quality program is performance of the Federal Facilities Compliance Agreement for Radioactive Air Emissions. Meeting the commitments in this agreement is critical to many of the Laboratory's core competencies such as the advanced and nuclear materials core competency.

The group is organized to effectively accomplish its mission through the use of project teams. Project teams are centered around ESH-17 deliverables and use the group's technical expertise to produce the deliverables in a timely and cost effective manner. Currently ESH-17 is composed of the following project teams with functions as described:

Operating Permit Project Team. Responsible for preparing and development of compliance assurance programs for the Laboratory's Clean Air Act Operating Permit. This includes the responsibility for providing compliance programs for all statutory regulations promulgated from the Clean Air Act. This includes 40 CFR 50 - 70 and New Mexico AQCR regulations. Also, this group would provide programs for air issues residing in other regulations not related to the Clean Air Act. Interact with regulatory agencies on strategic designs of air compliance programs. Develop programs to streamline record keeping and reporting requirements between permitting authority and the Laboratory. Streamline regulatory information flow between operators and regulatory subject matter experts.

Radionuclide NESHAP Project Team. This project is directly responsible for all activities that relate to the production of the Radionuclide Emissions Report required annually by 40 CFR 61 Subpart H. It includes all activities related to stack sampling, (including system upgrades), analysis, and dose assessment. This project includes the activities required by the Federal Facilities Compliance Agreement (FFCA) including the 17 AIRNET ambient air-monitoring stations. The project is responsible for the measurement or calculation of all radionuclide emissions from the Laboratory facility as described in 40 CFR 61 Subpart H or the FFCA. Any tasks related to compliance assurance with this regulation, such as ESH-Questionnaire review for stack sampling and new construction, design reviews and inspections are part of this project.

Environmental Surveillance Report Project Team. This project is directly responsible for all dose assessment and air-quality-related activities for the production of the Environmental Surveillance Report (ESR) as required by DOE Order 5400.1. This includes all activities that collect and analyze air quality and direct radiation measurement data required for DOE mandated environmental surveillance. This project includes all dose assessment activities that analyze the dose contribution of the other media (water and foodstuffs). This project is responsible for all QA plans related to the measurements and dose assessments related to these environmental measurements.

Community Monitoring Project Team. This project includes activities ESH-17 provides in support of the NEWNET community monitoring effort. This project includes

the development of a QAPP, and program review reports for the NEWNET system and includes meteorology, health physics and QA activities.

DOE Emissions Report Project Team. This project is directly responsible for all activities related to the production of the annual DOE Emission Report. This includes all data compilation, emission calculation and report preparation. Activities that collect the radionuclide emission data are included in the RAD-NESHAP Project.

Emergency Management Project Team. This project includes all activities within ESH-17 that produce the capability to respond to emergency releases. This project includes all meteorology activities required for DOE Orders relating to emergency response and the development of emergency scenarios. This project includes the identification of personnel responsible for emergency management relating to meteorology and health physics.

Asbestos Reporting Project Team. This project includes all ESH-17 activities related to the production of the Special, Quarterly and Annual Asbestos reports required by 40 CFR 61 Subpart M. This activity is limited to the, coordination, reporting and inspection activities that now reside in ESH-17.

EPCRA Reporting Project Team. This project is directly responsible for all activities related to the production of the annual SARA 313 Report. This project is also responsible for reporting unplanned release information through CERCLA. This project includes all activities related to the compilation and calculation of chemical usage and emissions data required by the report. This project includes the preparation, record keeping and submittal of the report.

Area G Studies Project Team. This project is responsible for the air quality related environmental surveillance activities done for CST Division at AREA G waste disposal area. This activity includes the ambient air monitoring and direct radiation measurement data collection. This activity includes data analysis and quarterly report generation.

Water Quality and Hydrology (ESH-18)

Major Activities:
- Provide environmental monitoring and related activities to help insure that Laboratory operations do not adversely affect public health or the environment.
- Provide technical and regulatory support to operating groups to achieve compliance.
- Provide interpretation of water quality laws and regulations, and develop institutional standards with operating groups.
- Provide institutional coordination of all water quality related permits and documentation.
- Provide interface for Laboratory with regulatory agencies.

Major Programs:
- NPDES Outfall Permit Program
- Waste Stream Characterization and Outfall Reduction Program
- Storm Water Discharge Program
- NMWQCC Regulations Program
- Spill Control Program
- Safe Drinking Water Act Program
- Environmental Surveillance Program
- Ground Water Protection Program

Principal Capabilities:
- Environmental Engineering-Water Quality
- Water and Wastewater Treatment
- Environmental Science-Water Quality
- Hydrology and Geology

Contribution for Laboratory Mission:
- Ensure Laboratory operations do not adversely affect public health or the Environment.
- Ensure compliance with applicable laws and regulations.

Hazardous and Solid Waste (ESH-19)

The Hazardous and Solid Waste Group's principal mission is to provide support to line organizations for compliance with hazardous and solid waste, underground storage tanks, and Polychlorinated biphenyl's (PCBs) rules, regulations, and DOE orders. Compliance activities include; interpretation of current regulations, transmittal of vital information and aid in meeting these regulations, submittal of required reports, notices and permit applications, negotiations with regulatory agencies on permit conditions and compliance orders, and maintaining records and data necessary to meet requirements.

Another main operation of the group is to provide site characterization for customers, such as the Environmental Restoration Program, and environmental monitoring for CST. A total package, including sampling design, surveying sample location, shallow drilling and surface sampling, and reporting are provided to the customer.

Laws and regulations of concern to and the responsibility of the group include the Resource Conservation and Recovery Act (RCRA), Hazardous and Solid Waste Amendments (HSWA), Toxic Substances Control Act (TSCA), Federal Facilities Compliance Act (FFCA), New Mexico Solid Waste Act, New Mexico Hazardous Waste Regulations, and New Mexico Underground Storage Tank Regulations.

Permitting Section. The principal responsibility of the Permitting Section is to initiate the hazardous waste permitting process, assure permit applications are adequate and correct, and negotiate the terms of the permit with the New Mexico Environment Department or the Environmental Protection Agency. There are approximately 60 mixed waste units operating under interim status (i.e., they were in existence when new regulations went into effect and can remain operating under interim status until the NMED either approves of denies a permit.) The Laboratory will need to permit each of the units.

Technical Support Section. This Section is responsible for keeping current with new regulations and regulatory contacts. Regulations are read, interpreted, and appropriate information disseminated to those that handle hazardous waste, use or dispose PCBs, or store hazardous materials in underground storage tanks. Support is furnished to Laboratory operations before, during, and after audits and inspections by NMED, EPA, DOE and internal auditors. Negotiations are conducted on behalf of the Laboratory to reduce and eliminate violations and fines.

Waste Sites Studies Section. This section is responsive to the direct needs of specific programs, such as, site characterization of old and abandoned sites that is required in support of the ER Program's mandates under HSWA and the HSWA Permit. Another activity is to provide sampling and monitoring support to areas where operations are on-going and where there is a need to determine if contamination is leaving the site.

Ecology (ESH-20)

ESH-20 researches the natural and cultural resources of the Laboratory and its environs, determining means to mitigate possible adverse impacts of laboratory operations and monitoring the effect that the Laboratory has on the human environment. The group helps the Laboratory be a responsible steward of the 43 square miles of federal lands entrusted to its care.

The Ecology Group has five teams organized along functional areas. Three of these teams, the Biology, Cultural Resources, and National Environmental Policy Act (NEPA) teams,

provide a look forward to forecast possible impacts of Laboratory activities on the environment of northern New Mexico and determine appropriate mitigation measures to ameliorate potentially adverse impacts before they occur. The remaining two teams, the Soils and Foodstuffs and Environmental Reports teams, provide a look back by compiling a "report card" of the actual impacts of laboratory activities on the local environment.

ESH-20 supports the institutional core competencies of the Laboratory and DOE by providing field research, studies and procedural reviews of Laboratory activities that are required by law, regulation, or DOE orders. ESH-20 provides information to Laboratory managers to help them plan activities to minimize adverse impacts to the Laboratory environment and serves the public health and welfare by providing information to the state, American Indian tribal governments, other federal agencies, and the general public regarding the potential impacts and actual effects of Laboratory activities. The group conducts scientific research on a variety of topics to lead to a greater understanding of the environment of northern New Mexico and the interaction of laboratory activities on that environment.

Biology Team. The Biology Team studies the biota (plants and animals) of the laboratory and northern New Mexico. Team members have expertise in aquatic biology, botany, ornithology, wildlife management, plant ecology, entomology, and related sciences. The team identifies ecological baseline conditions and conducts studies to determine the effect of laboratory activities on the local biota, including contaminant transport and uptake in plant and animal species. The team also performs studies of small and large mammals in northern New Mexico to determine such things as population growth, disease vectors, and movement of species to and from the area. These studies take on added importance with the recent DOE emphasis on site planning based on ecosystem management.

The team collects field data and other information to prepare biological assessments, habitat management studies, flood plain and wetlands assessments and other types of studies relating to biological resources. These studies assist the laboratory to meet its compliance obligations under the Endangered Species Act, the Fish and Wildlife Conservation Act, Executive Orders and DOE regulations relating to flood plain and wetlands management, and various other federal and state laws pertaining to the natural environment.

The team uses a variety of analytical techniques. Some involve field sampling and analysis, such as use of satellite-based Global Positioning System (GPS) methods. Computers are used for statistical or other modeling methods. The team makes heavy use of Geographic Information System (GIS) computer programs to accurately plot observation points and ecotomes and to predict effects of human activities on the laboratory *biota*. The team curates collections of plant and animal specimens including an extensive invertebrate collection.

Of special interest in FY96, FY97 and FY98 is the Laboratory-wide Threatened and Endangered Species Habitat Management Plan. Mandated by the DOE, this multiyear, $5M study will provide a planning basis to allow better management of the Laboratory's facilities by identifying habitat areas for federally listed and state-listed threatened or endangered plant and animal species and means to protect habitat areas to meet state and federal laws. The plan is being prepared by a matrixed team comprising members of ESH-20 and other laboratory organizations; ESH-20 is seeking additional science and yechnology staff members to assist with this effort.

Other studies of special interest include *hantavirus* research and an elk-monitoring study. The team is researching small mammal populations and disease vectors associated with the spread of hantavirus and developing a predictive model under a five-year grant from the National Institute of Health. This work is being done in collaboration with the University

of New Mexico School of Medicine. The team is monitoring the rapidly-growing elk population the Pajarito Plateau, where the Laboratory is located, by means of GPS and other satellite data collections systems which track the location of individual radio-collared elk.

Cultural Resources Team. The Cultural Resources Team studies historical and archaeological sites within the Laboratory. Team expertise includes anthropology and archaeology with an emphasis on the archaeology and ethnology of northern New Mexico. The team identifies the presence and significance of historic and prehistoric sites and conducts studies to determine the effect of Laboratory activities on them. The team also identifies and records information pertaining to Los Alamos structures of the Manhattan Project era and the Cold War era, both of which are of interest to the President's Advisory Council on Historic Preservation.

The team collects field data and other information to prepare other types of studies relating to cultural resources. The team also consults extensively with tribal governments of affected American Indian tribes to protect sites of religious or cultural importance while respecting tribal privacy, and assists tribal governments to maintain traditional access to sites, properties, artifacts and other items of cultural significance. These activities enable the laboratory to meet its compliance obligations under the National Historic Preservation Act, the Archaeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, the American Indian Religious Freedom Act, and various other requirements pertaining to cultural resources and sacred sites. Team members consult with the State Historic Preservation Officer and assist DOE with this requirement.

The team uses a variety of analytical techniques. Some involve field sampling and analysis, such as use of GPS methods. Computers are used for statistical or other modeling methods. The team makes heavy use of GIS programs to accurately plot historical and archaeological sites, and to predict effects on cultural resource sites. When site mitigation measures require objects to be removed from their setting, the team identifies the specimens and their cultural significance prior to sending them to the state museum for curation. The team oversees prehistoric human remains found on laboratory property which are held at the Maxwell Museum of Anthropology at the University of New Mexico pending repatriation to descendant tribes.

NEPA Team. NEPA requires federal agencies to consider the environmental impacts of proposed actions on an equal basis with economic, technical, and other considerations before making final decisions. NEPA also requires that the decision making process be laid open to public scrutiny. Because the Laboratory occupies federal land and is administered by a federal agency, all activities proposed by the DOE or other Laboratory users are subject to NEPA review. NEPA reviews may entail preparation of an environmental impact statement (EIS), environmental assessment, or be categorically excluded from further review. The review identifies impacts to the natural, cultural, and social environment and means to mitigate adverse impacts. Laboratory NEPA reviews are prepared in accordance with the requirements of two sets of regulations: the President's Council on Environmental Quality NEPA regulations and the DOE NEPA regulations. As a matter of convenience, a NEPA document generally includes the results of reviews conducted under other environmental laws, such as flood plain and wetland assessments, biological evaluations, and cultural resource analyses.

The NEPA Team screens proposed actions to help DOE determine the initial level of NEPA review. Although the responsibility to make NEPA determinations for laboratory proposals rests with the DOE, in FY96 the team was delegated the authority to make determinations regarding certain types of proposed actions. On a case by case basis, the NEPA Team

prepares environmental assessments or other types of NEPA reviews for DOE on a contractual basis. The team also serves the laboratory by reviewing NEPA documents, such as EISs, prepared by DOE or its contractors, providing information to DOE or other contractors to assist in preparing NEPA reviews, and working with the DOE to develop NEPA review strategies for complex projects. Team members have expertise in ecology, health physics, anthropology, and other disciplines.

Soil and Foodstuffs Team. The Soils and Foodstuffs Team conducts the laboratory program of monitoring soils in the vicinity of the laboratory and foodstuffs grown or produced near the laboratory to determine if there is any uptake of contaminants into the human food chain. These studies are required by DOE orders. Team members have expertise in soils science, wildlife management, and statistics. The team samples a variety of foodstuffs that are either especially grown on laboratory property or which are generally available to the local population. The team monitors game animals by analyzing bone and meat samples from specimens killed in traffic collisions; fish from Cochiti Reservoir, Cochiti Pueblo, downstream from the laboratory; and locally-produced foodstuffs such as eggs, fruit, and vegetables. The team collects soils samples from laboratory sampling points, and analyzes them to determine contamination (hence potential uptake by plants or animals) and changes in contamination levels over time.

Environmental Reports Team. The Environmental Reports Team produces three major reports for the laboratory: the annual Environmental Surveillance Report, the Environmental Monitoring Plan, and the Environmental Protection Implementation Plan. These are required under four DOE orders (5400.1, General Environmental Protection Program; 5400.5, Radiation Protection of the Public and the Environment; 5484.1, Environmental Protection, Safety and Health Protection Information Reporting Requirements; and 5820.2A, Radioactive Waste Management), and are subject to approval by the DOE. The team compiles environmental surveillance information collected by other teams of ESH-20, other groups within the Environment Safety and Health Division, and other laboratory organizations. The completed annual surveillance report serves the laboratory by providing information on the actual environmental effects of Laboratory operations and making this available to the State, American Indian tribal governments, other federal agencies, and the general public. The other two reports are also made available to agencies and the public to explain how and when this information will be collected. Team members have expertise in scientific writing and editing, science and math education, and document production.

Business Support Office (ESH-BSO)

The Business Support Office's mission is to facilitate the Laboratory's institutional support processes to ensure that they serve the needs of the ESH Division in the most effective and efficient manner. The processes include: human resources; facilities management; publications; property management and procurement. Each of these functions is staffed through a distributed model by the Laboratory's core organizations. ESH-BSO provides a coordinated support structure for the assigned staff professionals that strives to enhance their understanding of the division's vision, goals, and challenges. Conversely, ESH-BSO also contributes to enhancing communications and ultimately the responsiveness of the division which enables institutional processes to be more productive.

Sitewide Environmental Impact Statement Team (ESH-EIS)

The purpose of the Los Alamos Sitewide Environmental Impact Statement Project Office is to provide a single point of contact within the Laboratory for support to the National Environmental Protection Act (NEPA) process to prepare a new sitewide environmental impact statement (EIS) for the Laboratory over the next couple of years. The Laboratory's role in the DOE process is to provide baseline data about;the Laboratory's current environment, facilities, ongoing programs and activities, and likely future programmatic activities. ESH-EIS is responsible for helping to identify the types of data required for the sitewide EIS, determining what is available, determining the characteristics of the existing data, organizing the information on data, and submitting it to DOE.

The scope of this effort involves supporting the DOE/AL project manager for the Laboratory's sitewide EIS and DOE's independent contractor by providing baseline information for the EIS in the form of supporting documentation; facilitating access to data; assisting in DOE/AL's development of additional data; reviewing documents for accuracy and liability; and reviewing the mitigation action plan (MAP) for viability and accuracy. The documentation consists of an informational document that addresses baseline data on programs, facilities, operations, environment, health and safety, cultural resources, socioeconomic factors, and new projects. In the short term, this documentation will be used to support EIS. Looking to the future, this documentation will support future NEPA and other environmental protection requirements. In addition to this documentation, the project office will support and internal information program for Laboratory employees and subcontractors to heighten their awareness of the sitewide EIS process.

Toward the end of the process a MAP will be generated by DOE. The MAP will contain commitments that are the basis for DOE's record of decision (ROD). The MAP will also describe a plan for implementing commitments made in the sitewide EIS to mitigate adverse environmental impacts associated with the selected alternative.

One of the final tasks of the project office will be to make recommendations to the Laboratory's Operations Working Group about establishing a procedure to ensure that any mitigation measures are implemented and traced for any impacts identified in the MAP and the ROD. The project office will also make recommendations regarding the ongoing evaluation of Laboratory operations and the environmental envelope established by the process.

Institutional Affairs Office (ESH-IAO)

The Institutional Affairs Office's mission is to provide a functional interface with internal and external organizations that have a business relationship with the ESH Division. The office provides customers with a single point of contact for their interactions with the ESH Division and in some cases, for the Laboratory. The office focuses on cross-cutting ES&H issues, external regulators, UC, DOE, other National Laboratories, and industrial collaborations and partnerships. Additionally, the office has responsibilities for; audits and assessments, the Laboratory Leadership Council’s Operations Working Group support function, and interface with DNFSB. Staff in the office support special assignments that may involve helping other Laboratory organizations deal with ESH interface issues, assisting ESH Division with process analysis and integration of strategic planning, and seeking new opportunities for program development. The ESH-IAO team contributes to programmatic success in support of the Laboratory's core competencies, through issues management that facilitates the safe and environmentally sound performance of operations.

Operational Integration Office (ESH-OIO)

The Operational Integration Office's mission is to provide Laboratory-wide operational integration of methodologies, processes, and team leadership for accomplishment of activities that complement the Laboratory's programs and mission. This requires close integration and coordination with DOE and the Defense Nuclear Facilities Safety Board.

ESH-OIO provides project and process management and teaming leadership support in the following areas:

- Order Compliance Self-Assessment
- Conduct of Operations
- Integrated Standards-Based Management System (DOE Standards Program development)
- DOE 90-2 Implementation
- Tiger Team Action Plan close-out facilitation
- Standards/Requirement Information Database (STRIDE)

ESH-OI employees provide technical and support expertise in implementation of the above programs. Specific expertise includes: 1) program and project management planning, 2) process management implementation and quality control, 3) program configuration control, 4) resource management, 5) knowledge-based experience in database development and management, 6) procedural development and implementation, 7) corrective action plan development and implementation, 8) cost/risk benefit evaluation, 9) root cause analysis, 10) lessons learned, 11) assessment and compliance schedule agreement development, and 12) teaming leadership.

ESH-OI supports the enhancement of creative science and innovative technology within an environment that is safe and healthy for present and future generations and that restores and preserves the earth through development and management of compliance processes to achieve Laboratory operational effectiveness comparable to world-class industrial concerns.

Planning and Management Processes Office (ESH-PO)

The Planning and Management Processes Office's mission is to provide guidance and support in development, implementation, and operation of various management tools. The staff provides prioritization, financial management, project controls, performance measurement, strategic planning, issues management, reengineering, and commitment management coordination and training for the ESH Division and the Laboratory.

The Planning & Management Processes Office is comprised of environmental management, financial management, project controls, performance measurement, management specialists, and administrative staff, who support ESH Division, the Laboratory, and the DOE complex requiring management process and management specialist support.

The Planning and Management Processes Office has assisted ESH Division management with the development and implementation of a management system for actively defining, prioritizing, authorizing, measuring, and managing ESH activities. The ESH Division management comprises several interdependent individual processes. The following is a brief summary for each process.

- **Customer requirements and expectations**. is a method and approach that assembles customer, institutional, and regulatory requirements and expectations. This is a key bridge between the ESH Division management process and the environment in which the division performs its work. Information assembled within this element serves as input into issues management, strategic planning, work package prioritization, and performance-based metrics.
- **Issues management**. collects issues impacting the division's work, filters insignificant and invalid issues, evaluates, and establishes priorities for pertinent issues. Issues are assigned to an owner for further analysis, development of resolution strategies to include implementation recommendations and resource requirements. Throughout this process element, the issues are reviewed against the ESH Division strategic plan, technical baseline, project management information, and performance-based metrics. The output from the process can update the strategic plan, technical baseline, project management information, and performance-based metrics.
- **Strategic planning**. is the principle mechanism for communicating the direction in which ESH Division, Los Alamos National Laboratory, Department of Energy, and other ESH Division customers are focusing current and future resources and management attention. The strategic plan has strong influence on priorities utilized for development of the work packages, technical baseline, and performance-based metrics.
- **Work package prioritization**. involves the development of work packages and the subsequent prioritization of work packages using the Laboratory Integrated Prioritization System (LIPS). Work packages contain the technical scope, scheduled milestones, estimated resource (cost), and the relevant financial information. The output from this process, upon approval by division and Laboratory management, constitutes the ESH Division technical baseline.
- **Technical baseline**. epresents the ranked list of work packages into a final set of approved and funded packages that becomes the division's program baseline. This process includes a thorough review of work packages by division management, application of resource constraints to the resulting ranked list, and negotiations with customers and regulators regarding realistic expectations and related commitments.
- **Project management**. provides the ability to plan and status work, report progress, and incorporate necessary changes to the technical baseline and performance-based metrics. Project management typically contains budget, schedule, and performance information and tracking systems. Actual costs and estimate to complete are incorporated

into the project management system to ascertain current, cumulative, and projected schedule and cost status.

- **Performance-based metrics**. is the process of defining key technical, business, management, and financial metrics for the division, program, and technical and delivery processes. The metrics are developed based on customer requirements and expectations, e.g., DOE/UC Contract - Appendix F, and ESH Division's strategic plan. The metrics are intended to help ensure achievement of each division objective. The measurements directly relate to the project management milestone and schedule. The project management process provides monthly status based on the related milestones and schedule; however, status assessments and reports for the performance-based metrics will be provided at least quarterly.

Radiation Protection Office (ESH-RPO)

The Radiation Protection Office provides overall direction, oversight and management of the Laboratory's radiation protection program. The Radiation Protection Office manager also serves as the point of contact for DOE and Laboratory customers, integrates radiation protection into the facility management process, and provides recommendations for investment of institutional resources. The Radiation Protection Office manager is the Radiation Protection Program Manager, who is also designated as the Radiation Control Manager for the Laboratory. The Radiation Protection Office is an ESH Division office and the Leader reports to the ESH Division Director.

The Radiation Protection Office contributes to all Laboratory core competencies that use radioactive material and/or ionizing radiation. The nuclear and advanced material competency and the nuclear weapons science and technology competency derive particular benefit from the Radiation Protection Office support.

Technology Development

(Technology development is a cross-cutting activity of several organizations within ESH Division.)

In FY95, ESH Division initiated a Technology Development, Evaluation and Application (TDEA) Program, allocating approximately 1% of its annual budget to developing technologies that would ameliorate Laboratory ES&H problems. Program priorities are to benefit Laboratory workers and the public; support Laboratory mission objectives; build on unique expertise and requirements at Laboratory; achieve success within three years; and transfer technology to other DOE sites. Program focus is on the Laboratory's needs and problem solving and applied science make TDEA noncompetitive with the Laboratory Directed Research and Development Program.

During FY95 and FY96, ESH identified priorities. In FY96, the division is supporting seven small projects (<$100k each; total program $400K) in neutron dosimetry, exposure assessment, engineering controls, personal protective equipment, and environmental impacts. Early accomplishments include improving methods for estimating worker neutron exposure; evaluating the effectiveness of exposure assessment using continuous air monitors (CAMs); identifying procedures to locate CAMs; and collaborating with commercial organizations regarding preparation and testing of new protective gloves.

Additional success indicators are one project has matching funds from the Nuclear Materials Technology Division; a neutron dosimetry study has in-kind beam-time support at LANSCE. In the future ESH Division will redefine priorities with greater line organization input, increase its funding commitment to 1–3% by FY 2000, and more aggressively seek additional outside funding. ESH Division hopes to extend this effort to support Laboratory-wide line organization involvment in ES&H technology development.

ESH-4 R&D—ESH-4's Measurements Technology Support Section conducts applied research and development activities in support of other radiation measurements needs of the Laboratory, and also manages the *in vivo* measurements program for the Laboratory

ESH-5 R&D—ESH-5's industrial hygiene and safety research and development section provides support to Los Alamos National Laboratory, DOE, DOE contractors, other federal agencies and private organizations to solve problems in the areas of respiratory protection, personal protective equipment, and air emissions monitoring and control. Future technical programs planned and/or proposed by ESH-5 include the following:

- developing an integrated protective ensemble for HAZMAT operations that uses liquid air for breathing and cooling
- a new design for a totally encapsulating suit and a built-in communications system;
- evaluaing bypass leakage paths in HEPA filter systems used in nuclear facilities;
- developing a multichemical dosimeter for HAZMAT operations;
- upgrading a computer model for predicting the performance of activated charcoal air cleaning systems; and
- miniaturizing photometers used for aerosol monitoring.